

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MISSOURI
EASTERN DIVISION

KENNY LEE, et al.,)	
)	
Plaintiffs,)	
)	
v.)	Case No.: 4:22-cv-00476
)	
STATE FARM FIRE AND)	
CASUALTY COMPANY, et al.,)	
)	
Defendants.)	
)	

MEMORANDUM AND ORDER

The matter is now before the Court on Plaintiffs’ Motion to Exclude the Expert Testimony of Caitlyn Head and Laurel Mason in this insurance lawsuit invoking the Court’s diversity jurisdiction. Doc. No. 34. For the reasons set forth below, the motion will be denied.

BACKGROUND

Plaintiffs Kenny Lee and Pamela Lee filed this action against Defendants State Farm Fire and Casualty Company (“State Farm”) and its employee Karen Gillespie (“Gillespie”) in the Circuit Court of Osage County in February 2022, asserting claims of defamation and vexatious refusal. In April 2022, the matter was transferred to Gasconade County and was thereafter timely removed to this Court on the basis of diversity jurisdiction. Doc. No. 1.

This matter arises from a fire that occurred at Plaintiffs’ residence on March 10, 2020. Plaintiffs sought coverage for their real and personal property loss under their

insurance policy with State Farm, which was ultimately denied.

There are conflicting reports and information as to whether the fire was accidental or intentional. On March 10, 2020, the Potosi Fire Protection District report noted that the cause of ignition was unintentional and the factor contributing to ignition was a heat source too close to combustibles. Doc. No. 29-7 at 1. On March 12, 2020, the State Farm claim file states that the origin and cause investigator, Joe Garland, “found evidence of an inexpensive small extension cord that was used to run power to a space heater in the living room. The cord overheated and caught nearby combustibles on fire.” Doc. No. 29-6 at 1.

On March 17, 2020, an anonymous caller told State Farm that the fire was set intentionally, but later rescinded his statement, explaining that he was “lying and wanted to make [Plaintiffs’] lives hell.” Doc. No. 29-8 at 1. On March 24, 2020, the fire investigation was reopened; State Farm’s certified fire investigator returned to Plaintiffs’ house and conducted a secondary observation and collected a sample of the fire debris. The sample was sent to Analytical Forensic Associates where it was tested for the presence of accelerants by Caitlyn Head, a forensic scientist. Trace amounts of gasoline were found in the sample. Based on this finding, the State Farm fire investigator determined that the fire was set intentionally. Upon this determination, State Farm denied Plaintiffs’ claim.

Challenged Expert Testimony

As relevant to the present motion, Defendants seek to offer the expert testimony of chemists Caitlyn Head, ABC-FD and Laurel Mason, F-ABC, both of whom would opine about the testing and analysis of the fire debris sample and the issue of “gasoline tracking.”

Caitlyn Head, ABC-FD

Caitlyn Head is a forensic scientist certified by the American Board of Criminalistics (ABC) as a Fire Debris Specialist (FD). Doc. No. 36-1. She obtained her Bachelor of Science degree in forensic science with a minor in chemistry at the University of New Haven in 2011. She is a member of a number of professional associations, including the American Board of Criminalistics, the American Academy of Forensic Sciences, the International Association of Arson Investigators, and numerous others. She has been employed as a forensic scientist at Analytical Forensic Associates in Lilburn, Georgia since 2015. Her responsibilities include the chemical analysis of ignitable liquids in fire debris, validating the authenticity of evidence, and testifying as to the results of her analyses. She has experience performing many types of chemical and instrumental analyses, including gas chromatography-mass spectrometry (GC-MS), Fourier-transform infrared spectroscopy (FTIR), and flash point determinations. Prior to working at Analytical Forensic Associates, Head worked at AK Analytical Services as a Fire Debris Analyst.

Caitlyn Head testified that her lab received the sample of the fire debris from Plaintiffs' home from State Farm on March 27, 2020. The fire debris contained carpet and wood debris. Head tested the sample of fire debris with a gas chromatogram mass spectrometer (GC-MS) to determine the contents of the sample. Head explained that she places a carbon strip in the sample and then heats the sample to determine if there are any volatile materials. During this heating process, any volatile materials will rise to the top of the can and adhere to the carbon strip. The carbon strip is then placed in a solvent that removes any volatile materials from the strip. Next, the solvent is run through the GC-MS to determine what volatile materials are present, if any. From this testing process, Head determined that the debris sample contained gasoline.

During Head's deposition, defense counsel inquired about potential gasoline tracking at the fire scene. Counsel explained that when the issue of gasoline tracking arose in the case, he asked the lab for their opinion on the issue, and Mason and Head sent him an article discussing a gasoline tracking study.¹ Based on this article, defense counsel proffered a hypothetical:²

Mr. Lee has mentioned once or twice that he was filling a generator [with gasoline] that was in the basement of the home. ... If Mr. Lee had spilled gasoline in the area where he was filing the generator ... that he might have

¹ The reliability of this article, entitled "The Evaluation of the Extent of Transporting or 'Tracking' an Ignitable Liquid (gasoline) Throughout Fire Scenes During the Investigative Process" published by the Journal of Forensic Sciences, is raised in Plaintiffs' *Daubert* motion and is discussed in more detail below.

² Plaintiffs' counsel objected to the hypothetical on the basis that it was improper because it did not hypothesize all of the elements necessary and he has never seen the authoritative work Head was supposedly relying on.

stepped through – could it be transported on his shoes by walking that distance some ten feet to the stairs, and 11 to 12 steps up, and then a couple or three feet ... there's different estimates as to how far the area of origin is, but close to the top of the stairs?

Caitlyn Head Dep., Doc. No. 36-4 at 37:13-38:17.

Head testified that gasoline from the basement, as suggested in the hypothetical, could not be transported on his shoes to the area of origin. She further testified that her opinion would not change based on the type of shoes Mr. Lee wore, the weather, ventilation, or whether it was tracked across concrete or carpet. Head offered the following explanation regarding her conclusion:

DEFENSE COUNSEL: And what is your opinion? Well, could you track things from -- that was a -- spilled raw gasoline a distance of 12 steps up and 10 or 15 feet to the steps?

CAITLYN HEAD: No, Sir.

DEFENSE COUNSEL: Why not?

CAITLYN HEAD: So based on this study, there were six pieces of carpet that were laid out spanning 48 feet. And it was gas -- fresh gasoline and evaporated gasoline. There -- there was a mix of both during the study -- were poured onto the carpet. The first step, the investigator walked through with both feet and then essentially tracked down the carpet path. Those samples were then sent to a lab, and they were negative starting at Step Number 2, 3, 4, 5, and 6.

Id. at 41:7-22. She also testified that fumes emitted from the gas generator in the basement would not be detectable at the area of origin:

DEFENSE COUNSEL: And in terms of fumes, and with regard to the conversation that took place, I want you to realize what they're -- they're suggesting is that a generator, gas generator sitting in that same area where I was talking to you earlier about, where he was pouring gasoline, that that would be running, that the fumes from that gas generator would go ten feet and then up a flight of stairs and then be detectable in the area of origin. Do you have an opinion about whether gasoline fumes could have been the source of the ignitable liquid that you found in the sample?

CAITLYN HEAD: No, sir, they cannot.

* * *

DEFENSE COUNSEL: Why not?

CAITLYN HEAD: When gasoline fumes -- when those vapors emit from the -- the generator, they are heavier than air, so they're going to sit and condense right by that generator. Now, if you've got some that travel up the stairs, or let's say even travel, they are not going to be detected by the lab. They will be under the detection limit of the instruments.

DEFENSE COUNSEL: Would they be similar to this transporting tracking issue that was found in [the article] from the testing back in 2004?

CAITLYN HEAD: Yes, sir.

Id. at 73:4-74:11.

On cross-examination, Head confirmed that her conclusion regarding gasoline tracking was not included in her report because she only analyzed the debris to determine if there was an ignitable liquid. She explained that she formed her opinion based on the

article, approximately two years after her report. She did not perform any testing with respect to tracking nor does she have any formal education with respect to recreation of fire scenes for the purposes of determining whether gasoline is tracked or not. She further confirmed that her lab never made a formal determination that the gasoline was not tracked to the scene:

PLAINTIFFS' COUNSEL: And your lab never made a formal determination that the gasoline could not have been caused by splatter carried on shoes or from fumes emanating from the basement. Your lab never made a formal determination of that; is that correct?

CAITLYN HEAD: Well, yes. I mean, gasoline is present. Where it came from, is -- is not --that's outside of my scope. I can just tell you it's present or it's not, and it's -- present.

* * *

PLAINTIFFS' COUNSEL: Okay. So to say where it came from or how it got there, you don't know?

CAITLYN HEAD: Correct.

Id. at 68:22-69:11 (cleaned up).

Head also testified that it would be best to take samples as soon as possible after a fire occurs, but there have been positive samples that have been taken after an extended period of time. She was not aware of when the sample was collected, only the date of submission to the lab.

Laurel Mason

Laurel Mason is a forensic scientist and a fellow at the American Board of Criminalistics, where she is a certified Fire Debris Specialist. She also has an A2LA Laboratory Accreditation in forensic testing. She obtained her Bachelor of Science degree in biology from Mercer University in 1981. She is a member of a number of professional associations, including the American Board of Criminalistics (ABC), the American Academy of Forensic Sciences (AAFS), the American Society of Testing and Materials (ASTM), the National Fire Protection Association (NFPA), the International Association of Arson Investigators (IAAI), the American Chemical Society (ACS), and numerous others. She has been employed at Analytical Forensic Associates since 1992 and has served as a Senior Forensic Scientist, Laboratory Director, and President. She manages the operations of the analytical laboratory, routinely conducts chemical analyses, and evaluates the validity of the work of other scientists. She evaluates chemical interactions and reactions of components specific to fire losses, and has experience performing many types of chemical and instrumental analyses including GC-MS, FTIR, and light microscopy. Prior to Analytical Forensic Associates, Mason worked as a forensic chemist at Applied Technical Services, Inc. where she managed the fire and arson laboratory. She has analyzed over one hundred thousand fire debris samples since 1981 and has testified as an expert witness in 16 different states.

Laurel Mason testified that she conducts quality control in the laboratory, so every piece of data or every sample that is analyzed in the laboratory is reviewed by her,

including Caitlyn Head's testing of the debris sample at issue. Her testimony was largely consistent with Caitlyn Head's testimony. Mason testified that the GC-MS testing method used to determine the presence of volatile substances has been used since the 1990s and is considered the gold standard. Mason clarified that while her lab cannot determine how much gasoline was present at the area of origin, they can determine how much gasoline was present in the debris sample. In this instance, there were 3 to 4 microliters of gasoline in the debris sample. She explained that a drop is about 50 microliters, so it was a very small amount of gasoline, but significant enough to detect through their testing methods. Mason also testified that her lab found about 25% evaporated gasoline which indicates that the gasoline had been present at the scene for less than one month. However, she could not determine whether the gasoline was present at the scene before or after the fire.

With respect to the tracking issue, Mason testified that defense counsel requested that she look into whether the gasoline present in the debris sample could have been tracked to the scene from the generator in the basement. Consistent with Head's testimony, Mason testified that she relied on the journal article to form her opinion that the gasoline found at the scene could not have been tracked from the basement. Head stated that she is not aware of any other articles that discuss gasoline tracking.

Disclosure Issues

On June 10, 2022, Defendants disclosed that Laurel Mason would give expert testimony "regarding chemical analysis of samples removed from the fire scene."

Expert Disclosure of Mason, Doc. 35-2. Mason's formal expert report did not mention any opinions with respect to "tracking" gasoline through fire scenes or migration of gasoline fumes, nor did Defendants disclose that she would be opining on this issue. Plaintiffs were not aware that the tracking issue would be the subject of an expert opinion by Mason until her deposition was taken by Defendants on November 1, 2022, to preserve her testimony for trial. Mason relied on the aforementioned journal article in forming her opinion with respect to gasoline tracking. The article was not provided to Plaintiffs' counsel until after the expert depositions, even though it was identified and marked by Defendants during the deposition.

The Case Management Order (CMO) required the party with the burden of proof to disclose all expert witnesses and provide summaries and reports as required by Rule 26(a)(2)(B) and (C) no later than November 1, 2022.³ Defendants did not disclose Caitlyn Head as an expert witness prior to her deposition. Nor were any of the required expert reports and disclosures provided to Plaintiffs' counsel prior to Head's deposition. Immediately prior to Head's deposition, defense counsel provided Plaintiffs' counsel with Head's resume and summary of past testimony, but the journal article and other exhibits generated in connection with the fire debris testing and analysis were not provided to Plaintiffs' counsel until after the deposition, even though Head relied on such exhibits during her testimony.

³ Although the CMO only sets the disclosure deadline for "the party with the burden of proof," Defendants acknowledge in their response that their deadline to disclose experts was November 1, 2022.

Two days after Head's deposition, on November 3, 2022, Defendants filed a supplemental expert designation that stated, "Caitlyn Head ... will express the opinions given at her deposition in this case on November 1, 2022 at the trial of this case" and "Laurel Mason whose expert designation has already been provided to opposing counsel along with the reports of Analytical Forensics Associates holds the same opinions as those expressed during her deposition on November 1, 2022." Third Suppl. Rule 26(a)(1) Initial Disclosure and Expert Designation, Doc. No. 35-3.

Defense counsel believes that he informally informed Plaintiffs' counsel that Head and Mason would be addressing the tracking issue, but offered that both experts would be available for Plaintiffs to re-depose at Defendants' expense.

ARGUMENTS OF THE PARTIES

Plaintiffs seek to have Caitlyn Head excluded as an expert and to have Laurel Mason's testimony limited to the opinions set forth in her report. Plaintiffs argue that both experts' testimony regarding gasoline tracking should be excluded not only due to the procedural deficiencies, but also because their testimony is unreliable. Specifically, Plaintiffs argue that Mason and Head are not qualified to give opinions on gasoline tracking and there is too great of an analytical gap between the data and the opinions proffered. Plaintiffs further argue that the article the experts used in their analysis is not a sufficient basis for their opinions, given that the article is almost 20 years old and the study conducted was limited in its application.

Defendants argue that any procedural delay or error is harmless because Plaintiffs suffered no prejudice and had all of the time allotted by the Case Management Order to re-depose Head or Mason, at Defendants' expense, and to retain their own experts to rebut Head's and Mason's opinions. Defendants also contend that the testimony regarding gasoline tracking should not be excluded because both experts are qualified to testify on the issue of gasoline tracking and their analysis, including their reliance on the article at issue, is reliable and based on scientific principles.

Lastly, Defendants argue that State Farm made its decision to preclude payment in reliance on the opinions about gasoline tracking. Thus, even if the Court decides that the testimony about gasoline tracking should be excluded because it was not properly disclosed or is not scientifically reliable, the testimony is admissible to demonstrate Defendants' good faith and reliance on the consultants who assisted State Farm in the investigation and analysis of Plaintiffs' fire scene. Plaintiffs did not file a reply.

Additional facts and arguments will be discussed in further detail below as relevant to the parties' specific arguments.

DISCUSSION

Disclosure of Expert Testimony

Federal Rule of Civil Procedure 26(a)(2), which governs the disclosure of expert testimony, requires that "a party must disclose to the other parties the identity of any witness it may use at trial to present evidence under Federal Rules of Evidence 702, 703,

or 705.” Fed. R. Civ. P. 26(a)(2)(A). The rule also requires expert witnesses who are “retained or specifically employed to provide expert testimony in the case” to provide a written report, prepared and signed by the witness, at the time of the disclosure. Fed. R. Civ. P. 26(a)(2)(B). The written report must include:

- (i) a complete statement of all opinions the witness will express and the basis and reasons for them;
- (ii) the facts of data considered by the witness in forming them;
- (iii) any exhibits that will be used to summarize or support them;
- (iv) the witness’s qualifications, including a list of all publications authored in the previous 10 years;
- (v) a list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by depositions; and
- (vi) a statement of the compensation to be paid for the study and testimony in the case.

Fed. R. Civ. P. 26(a)(2)(B)(i)-(vi). The rules require that these disclosures be made “at the times and in the sequence that the court orders.” Fed. R. Civ. P. 26(a)(2)(D).

Absent a stipulation or court order, the disclosures must be made at least 90 days before the trial date. *Id.*

If a party fails to disclose an expert and their opinions in accordance with the requirements under Rule 26(a), “the undisclosed information or expert is excluded unless the failure was substantially justified or harmless.” *Vanderberg v. Petco Animal Supplies Stores, Inc.*, 906 F.3d 698, 703 (8th Cir. 2018) (citing Fed. R. Civ. P. 37(c)(1)). “A district court has wide discretion to fashion a remedy or sanction as appropriate for

the particular circumstances of the case when a party fails to provide information ... in compliance with Rule 26(a).” *Zick v. Paccar, Inc.*, 47 F.4th 672, 677 (8th Cir. 2022) (citations omitted). The district court should consider the following when fashioning a remedy; “the reason for noncompliance, the surprise and prejudice to the opposing party, the extent to which allowing the information or testimony would disrupt the order and efficiency of the trial, and the importance of the information or testimony.” *Id.* (citation omitted). “[E]xclusion of evidence is a harsh penalty and should be used sparingly[.]” *Gruttemeyer v. Transit Auth.*, 31 F.4th 638, 645 (8th Cir. 2022) (internal quotation marks omitted).

Here, pursuant to the Case Management Order, expert designations and reports were due by November 1, 2022. On June 10, 2022, Defendants timely disclosed Laurel Mason as an expert witness. Defendants’ expert designation stated that Mason was “expected to testify regarding chemical analysis of samples removed from the fire scene.” Doc. No. 35-2 at 1. The designation also included the analytical test report from the lab, Mason’s Curriculum Vitae, a list of past cases in which she testified as an expert, and her deposition fee. *Id.* at 1-17. Notably, the designation did not include Mason’s opinions on gasoline tracking or any of the other exhibits, aside from the test report, that Mason used in her deposition. Defendants did not designate Caitlyn Head as an expert prior to her deposition on November 1, 2022, nor were any reports or exhibits provided to Plaintiffs in advance of the deposition. Both Head and Mason were deposed by Defendants on November 1, 2022, Plaintiffs’ counsel was present at the depositions.

After the depositions, on November 3, 2022, Defendants issued a “Third Supplemental Rule 26(a)(1) Initial Disclosure and Expert Designation.” Doc. No. 35-3. Here, Defendants designated Caitlyn Head as an expert witness, provided her Curriculum Vitae, a list of prior testimony, and noted that Head “will express the opinions given at her deposition in this case on November 1, 2022 at the trial of this case.” *Id.* The designation also noted that Laurel Mason had previously been designated as an expert witness and “holds the same opinions as those expressed during her deposition on November 1, 2022.” *Id.* Notably, the designation also explicitly noted that “[t]o the extent opposing counsel requires additional opportunity for cross-examination of experts, the attorney for Defendant will, at Defendant[s’] costs, make the witnesses available for further Zoom deposition at a mutually convenient time.” *Id.* This offer was also extended to Plaintiffs on the record at the close of Mason’s deposition.

Pursuant to the case management order, expert depositions were to be completed by December 15, 2022, and any rebuttal expert disclosures were due by January 16, 2023, with rebuttal expert depositions to conclude by January 30, 2023. Plaintiffs did not take Defendants up on their offer to re-depose Head and Mason, nor did they offer any rebuttal witnesses on the tracking issue.

Justification

Defendants’ offer little to no justification for their failure to timely disclose Caitlyn Head as an expert and their deficient disclosure of Mason’s expert opinions regarding gasoline tracking. Defendants were aware of Mason and Head as potential

experts as early as March 2020, when their lab was hired to conduct testing on the fire debris sample; Head and Mason's names are both signed to the Analytical Test Report dated March 30, 2020. Doc. No. 35-2, at 3. In 2022, prior to the expert designation deadline, defense counsel specifically asked Mason her opinion on gasoline tracking. This is evidenced by the fact that State Farm's answers to Plaintiffs' First Set of Interrogatories, dated May 3, 2022, stated, "[t]he lab that tested debris from the area confirmed the presence of a large amount of gasoline and not from splatter carried on shoes or from fumes emanating from the basement." Doc. No. 36-2, at No. 5.

Defendants contend that this interrogatory response put Plaintiffs on notice that one of the lab experts would be testifying about gasoline tracking. However, the interrogatory did not name either Mason or Head, nor could it plausibly be considered a sufficient disclosure under Rule 26(a). *See Vanderberg*, 906 F.3d at 704 ("The expert witness disclosure requirements would be rendered meaningless if a party could ignore them and then claim that the nondisclosure was harmless because the other party should have read between the lines.").

Given that Defendants were aware of Head and Mason as potential expert witnesses and that their testimony would involve gasoline tracking far in advance of the expert disclosure deadlines, their failures to adhere to Rule 26(a)'s requirements are not justified.

Harmlessness

Although Defendants' procedural errors were not justified, ultimately, the errors are harmless. Plaintiffs were on full notice of what Head and Mason would be testifying to at trial; the bases for their opinions; and the exhibits relied upon as of November 3, 2023, just two days after the expert designation deadline. The deposition deadline was not until December 15, 2023, and the rebuttal deposition deadline was not until January 30, 2023. Further, the close of discovery was March 1, 2023, and trial is set for August 14, 2023. Crucially, Defendants offered to pay for Plaintiffs to re-examine Head and Mason at any mutually agreeable time. In sum, Plaintiffs had ample time and opportunity to re-examine Head and Mason or provide rebuttal witnesses, yet declined to do so.

The factors set forth in *Zick* also weigh against exclusion. Even though Defendants have not provided a sufficient reason for their non-compliance, Plaintiffs will not suffer prejudice, nor were they blindsided by these experts late in the discovery process or on the eve of trial. Allowing the information or testimony will not disrupt the order and efficiency of the trial, and the testimony offered by Head and Mason is very important to this case because it goes to the potential causation of the fire and the lab results that Defendants relied upon in denying Plaintiffs' fire loss claim.

In light of these considerations, Head's and Mason's testimony will not be excluded on a procedural basis. Whether their testimony regarding gasoline tracking should be excluded as unreliable is discussed below.

Admissibility of Gasoline Tracking Testimony

The admission of expert testimony in federal court is governed by Federal Rule of Evidence 702. *Wagner v. Hesston Corp.*, 450 F.3d 756, 758 (8th Cir. 2006). Rule 702 provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. The rule was amended in 2000 in response to *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993), which charged trial judges with a “gatekeeping” role to exclude unhelpful and unreliable expert testimony.

Factors relevant to the relevancy and reliability determinations include: “(1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review or publication; (3) whether the theory or technique has a known or potential error rate and standards controlling the technique's operation; and (4) whether the theory or technique is generally accepted in the scientific community.” *Russell v. Whirlpool Corp.*, 702 F.3d 450, 456 (8th Cir. 2012) (citations omitted). Additional factors include “whether the expertise was developed for litigation or naturally flowed from the expert's research; whether the proposed expert ruled out

other alternative explanations; and whether the proposed expert sufficiently connected the proposed testimony with the facts of the case.” *Lauzon v. Senco Prods., Inc.*, 270 F.3d 681, 687 (8th Cir. 2001).

“[T]he Daubert reliability factors should only be relied upon to the extent that they are relevant and the district court must customize its inquiry to fit the facts of each particular case.” *Shuck v. CNH Am., LLC*, 498 F.3d 868, 874 (8th Cir. 2007) (citations omitted); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141-42 (1999) (“the test of reliability is ‘flexible,’ and *Daubert*’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case. Rather, the law grants a district court the same broad latitude when it decides how to determine reliability as it enjoys in respect to its ultimate reliability opinion.”); *Unrein v. Timesavers, Inc.*, 394 F.3d 1008, 1011 (8th Cir. 2005) (stating that the “evidentiary inquiry is meant to be flexible and fact specific, and a court should use, adapt, or reject Daubert factors as the particular case demands”). The question is whether the expert’s opinion is sufficiently grounded to be helpful to the jury. *Unrein*, 394 F.3d at 1012.

Although the proponent of the expert testimony must prove its admissibility by a preponderance of the evidence, *Daubert*, 509 U.S. at 592 n.10, Rule 702 “is one of admissibility rather than exclusion.” *Shuck*, 498 F.3d at 874 (citations omitted). “The inquiry envisioned by Rule 702 is a flexible one,” designed to exclude “vague theorizing based on general principles” or “unsupported speculation,” but not requiring an opinion to be “a scientific absolute in order to be admissible.” *Adams v. Toyota Motor Corp.*,

867 F.3d 903, 914-16 (8th Cir. 2017) (citations omitted), *as corrected* (Aug. 14, 2017).

“Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Olson v. Ford Motor Co.*, 481 F.3d 619, 626 (8th Cir. 2007).

And any “doubts regarding whether an expert’s testimony will be useful should generally be resolved in favor of admissibility.” *Clark v. Heidrick*, 150 F.3d 912, 915 (8th Cir. 1998).

Plaintiffs argue that Head’s and Mason’s opinions regarding gasoline tracking are unreliable because they are not qualified to opine on gasoline tracking; there is too great an analytical gap between the data and opinion proffered; and their testimony is not the product of reliable principles or methods.

Qualifications of Mason and Head

Both Head and Mason are certified forensic chemists specializing in fire debris analysis. Head is a member of multiple professional associations and has over ten years of experience in fire debris analysis. Mason has been working as a forensic chemist since 1981, specializing in fire and arson analysis. She is not only a member of numerous professional associations but is a fellow at the American Board of Criminalistics where she is certified as a fire debris specialist. She testified that she has analyzed over one hundred thousand fire debris samples. Both experts are undoubtedly qualified to testify about the chemical properties of fire debris samples.

Plaintiffs argue that Head and Mason are not qualified to specifically testify about gasoline tracking because neither expert is a certified fire investigator, neither expert has personally conducted gasoline tracking experiments or studies, and Defendants did not develop any evidence of their special expertise in the area of gasoline tracking.

However, any gaps in an expert witness's experience or knowledge generally go to the weight of the witness's testimony, not its admissibility. *Robinson v. GEICO Gen. Ins. Co.*, 447 F.3d 1096, 1100-01 (8th Cir. 2006); *Garnac Grain Co., Inc. v. Blackley*, 932 F.2d 1563, 1567 (8th Cir. 1991) (finding the trial court erred in excluding the testimony of a witness who taught auditing courses for almost 40 years at the University of Kansas, worked only as a staff assistant at an auditing firm for four years in the 1940's, had no experience in auditing operations of the sort at issue, and whose license as a CPA expired in 1941, explaining that "[t]he weaknesses in his opinion and expertise go to the weight to be given his testimony, not its admissibility."); *Fed. Crop Ins. Corp. v. Hester*, 765 F.2d 723, 728 (8th Cir. 1985) ("The relative skill or knowledge of an expert goes to the weight of that witness's testimony, not its admissibility.")

"Rule 702 only requires that an expert possess 'knowledge, skill, experience, training, or education' sufficient to 'assist' the trier of fact, which is 'satisfied where expert testimony advances the trier of fact's understanding to any degree.'" *Robinson*, 447 F.3d. at 1100 (quoting 29 Charles Alan Wright & Victor James Gold, *Federal Practice and Procedure: Evidence* § 6265 (1997)). While Rule 702 requires that "the area of the witness's competence match the subject matter of the witness's testimony,"

the expert does not necessarily need to be a leading authority or specialist within the field in question in order for their testimony to be admissible. *See id.* (finding that a neurologist’s testimony about an orthopedic injury was properly admitted, explaining that most courts have found that a physician with general knowledge may testify regarding medical issues that a specialist might treat in a clinical setting.)

Head and Mason, through their education and experience as forensic chemists and fire debris specialists, are qualified to explain the gasoline tracking study to the jury, and compare the facts and data of this case to the findings of the study. The gasoline tracking study at issue was conducted by forensic chemists in the same field as Head and Mason, and the chemical lab analysis conducted in the study is identical to the analysis conducted on the fire debris sample by Head and Mason. Any gaps in skill or experience of the experts goes to the weight of their testimony, not the admissibility, and can be highlighted by Plaintiffs through cross-examination.

Reliability of Experts’ Opinions

Next, Plaintiffs argue that the proffered expert testimony should be excluded because it is too speculative, and there is too great of an analytical gap between the data and Head’s and Mason’s opinions. “A district court may exclude expert testimony if it finds that there is simply too great an analytical gap between the data and the opinion proffered, . . . [or] if it is so fundamentally unsupported by its factual basis that it can offer no assistance to the jury.” *In re Bair Hugger Forced Air Warming Devices Prod. Liab. Litig.*, 9 F.4th 768, 778 (8th Cir. 2021) (internal citations omitted). In other words,

proffered expert testimony can be excluded if it is speculative or unsupported by sufficient facts. *Barrett v. Rhodia, Inc.*, 606 F.3d 975, 981 (8th Cir. 2010).

Plaintiffs argue that numerous factors were missing from Head's and Mason's analyses when they concluded that the gasoline found in the fire debris sample could not have been tracked from the basement. Specifically, both experts admitted that they did not do any specific gasoline tracking test or experiments; they did not try to recreate or duplicate what may or may not have happened in the Plaintiffs' home; they did not know how much gasoline may have been used to start the fire; they did not know if the gasoline got into the sample intentionally or accidentally; they did not know how long the gasoline had been present at the fire scene; and their lab never made a formal determination in their report as to whether the gasoline could have been tracked from the basement. However, apart from opining regarding tracking, the experts do not attempt to opine on these issues; the testimony at issue is whether the gasoline found in the debris sample could have been tracked to the fire scene from the basement.

As to this specific testimony, the Court finds that the experts' opinions are supported by sufficient facts and data, and their analytical method of comparing the data in this case to a reliable scientific study is a valid scientific method. *See Kuhn v. Wyeth*, 686 F.3d 618, 626-632 (8th Cir. 2012) (explaining that the expert's testimony was admissible because the scientific studies on which he relied were sufficient to support his opinion and explaining that the studies' limitations "may be presented to the jury, and

[the expert's] reliance on the studies may be tested through traditional means of cross examination and presentation of contrary evidence.”)

Here, both experts were asked a hypothetical scenario, based on their knowledge and experience, as to whether the gasoline found in the fire debris sample could have been tracked from the basement. Both experts concluded that it could not be tracked from that distance, and based their analyses on a scholarly, peer-reviewed study that measured how far gasoline can be tracked under various scenarios. They explained, in detail, how the study found that gasoline can only be tracked a very short distance and given the distance of the basement to the fire scene, they concluded that the gasoline found at the fire scene could not have been tracked there from the basement. As such, the Court finds that the challenged opinions are sufficiently supported and are not merely connected to the existing data only by the ipse dixit of the experts. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 147 (1997). The deficiencies described by Plaintiffs go to the weight of the opinion, not the admissibility and may be explored on cross-examination. *See Arkwright Mut. Ins. Co. v. Gwinner Oil, Inc.*, 125 F.3d 1176, 1183 (8th Cir. 1997) (“[T]he factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination.”)

Reliability of Gasoline-Tracking Study

Lastly, Plaintiffs argue that the opinions regarding gasoline tracking should be excluded because the study the experts relied on is not reliable. Plaintiffs argue that the

“almost twenty-year-old ‘Technical Note’” should not have been relied upon because it applied only to contamination using three types of footwear on only two types of floor surfaces in unknown weather and temperature conditions in an outside area; it did not address repeated ingress and egress by occupants, relatives, adjusters, and other persons that go through a home at an unsecured fire scene for two weeks after the fire; and the results of the study consistently showed that trace amounts of gasoline were identified by canine detection up to eight steps away, the most steps in the study. *See* Doc. No. 35 at 2-4.

The study relied on by the experts, “The Evaluation of the Extent of Transporting or ‘Tracking’ an Identifiable Ignitable Liquid (Gasoline) Throughout Fire Scenes During the Investigative Process,” was published in the Journal of Forensic Sciences in July 2004. The study was conducted by experts in the field, peer-reviewed, and utilized the standards and guidelines of the National Fire Protection Association (NFPA) and the American Society for Testing and Materials (ASTM International). More specifically, the study tested carpet samples after individuals in three different types of shoes, fire boots, work boots, and tennis shoes, stepped in large quantities of spilled gasoline and then walked across both concrete and carpet. The study found that gasoline could not be detected via laboratory analysis more than one step from the pour/spill location. The study ultimately concluded that “boots or shoes of individuals at a fire scene do not transport sufficient contaminants (“tracking”) through the fire scene to produce a positive laboratory result for the presence of gasoline in a fire scene that was not present at the

time of the fire.” Doc. No. 35-1 at 1. Given that there was a positive laboratory result for the presence of gasoline at the Plaintiffs’ fire scene, the experts’ opinion that the gasoline could not have been tracked there from the basement, based on this study, is sufficiently reliable under *Daubert* and does not warrant exclusion. The fact that the study was conducted 19 years ago, and the fact that neither the experts nor Defendants could point to any other studies conducted on this highly discrete issue, does not render the study unreliable, nor is the experts’ reliance on it unreasonable.

Most scientific studies have certain limitations and cannot account for every single possibility or extraneous factor. For example, “the repeated ingress and egress by occupants, relatives, adjusters, and other persons that go through a home at an unsecured fire scene for two weeks after the fire” is a highly specific factual scenario exclusive to this case. Plaintiffs can address the limitations of the study, including this example, during cross-examination.

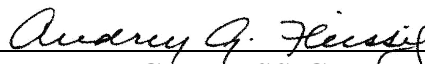
Upon review of the study and the experts’ deposition testimony with respect to the study, the Court finds that both the study itself and the experts’ reliance thereon are sufficiently reliable under *Daubert*. Rule 702 “is one of admissibility rather than exclusion.” *Shuck*, 498 F.3d at 874. The purpose of *Daubert* is to provide a district court with “the discretion necessary to close the courtroom door to ‘junk science’ and admit reliable expert testimony that will aid the trier of fact.” *Robinson*, 447 F.3d at 1100 (citing *Amorgianos v. Nat’l R.R. Passenger Corp.*, 303 F.3d 256, 267 (2d Cir. 2002)). Here, the Court finds that the experts are qualified, the science is reliable, and

the opinions are sufficiently grounded to be helpful to the jury. *See Unrein*, 394 F.3d at 1012. As such, the experts' testimony with respect to gasoline tracking is admissible.

CONCLUSION

Accordingly,

IT IS HEREBY ORDERED that Plaintiffs' motion to exclude expert testimony is **DENIED**. (Doc. No. 34).



AUDREY G. FLEISSIG
UNITED STATES DISTRICT JUDGE

Dated this 26th day of June 2023.